

Jeopardy Assessment

Proposed Incidental Taking Authorization of the state threatened Greater Redhorse (*Moxostoma valenciennesi*) for TRC Environmental Corporation's PCB remediation of Operable Units 2/Lower and 3 of Pine Creek in Calumet County, Wisconsin (ITA 73)

Background

The greater redhorse is a state threatened fish in Wisconsin. It is uncommon in widely scattered lakes and rivers throughout much of Wisconsin, but is absent from the southwestern portion of the state and from the Lake Superior basin (Becker 1983). Recent collections indicate that the greater redhorse is more widespread than previously thought (Lyons et al. 2000). In the Manitowoc River basin, greater redhorse are known from 18 total locations in the mainstem Manitowoc River and two of its major tributaries, the Branch River and the South Branch of the Manitowoc River (WDNR unpublished data; see <http://web2.er.usgs.gov/wdnrfish/>). Greater redhorse are present in the South Branch of the Manitowoc River both upstream and downstream of the dam at Hayton. This dam forms an impoundment referred to as Hayton Millpond. Pine Creek drains into the South Branch of the Manitowoc River from the south at Hayton Millpond.

A variety of aquatic habitats occur in and adjacent to Pine Creek (WDNR unpublished data), some of which are suitable for greater redhorse. Greater redhorse live in medium to large rivers and lakes, primarily in pools and deeper runs, over sand, silt, gravel, and cobble substrate (Becker 1983). During spawning they move into shallower runs and riffles with gravel and cobble substrate, often traveling several miles to reach appropriate habitat. The section of the South Branch of the Manitowoc River upstream from Hayton Millpond to the Chilton Millpond in the city of Chilton where greater redhorse occur consists of about 2.5 miles of river, averaging 20-25 ft wide and less than 3 ft deep. Gradient is moderate and macrohabitat is dominated by runs and riffles with occasional pools. Bottom substrate is primarily rock (gravel, cobble, and boulder) with sand also common. The Hayton Millpond has a surface area of 36 acres, a mean depth of 2 ft, and a maximum depth of 5 ft. It may be occupied by greater redhorse seasonally, but its shallow depth limits its suitability during summer. Pine Creek has a length of about 9 miles, and habitat changes from headwaters to mouth. It is probably too small for year-round greater redhorse use, but some areas appear to provide potentially suitable spawning and nursery habitat. The 3.4-mile-long upper reach, above Danes Road, is generally less than 20 wide and shallow and has a relatively high gradient with numerous riffles and predominantly cobble substrate. Riffles and runs just above Danes Road are potential greater redhorse spawning areas. The 4.1-mile-long middle reach, between Danes Road and Quarry Road, which also corresponds to the project area, is similar in width to the upstream reach but deeper and lower gradient, with mainly run and pool macrohabitats and only occasional riffles and mainly sand, silt, and gravel substrate. The area from Danes Road downstream to Honeymoon Hill Road is potential spawning and nursery habitat. The 1.5-mile-long lower reach, between Quarry Road and Hayton Millpond, is influenced by backwater effects from the millpond and is wide, flat, and shallow with no riffles and predominantly soft silt substrate. Habitat here is marginal at best for greater redhorse.

Although greater redhorse have not been documented in Pine Creek, they may use parts of the creek for spawning and juvenile development. Habitat is suitable, there are no barriers to movement by greater redhorse out of the South Branch of the Manitowoc River, and greater redhorse elsewhere probably travel distances comparable to the distance between the South Branch of the Manitowoc and Pine Creek at Danes Road (~ 8 miles) to find spawning habitat. No greater redhorse were collected in Pine Creek in a single sample from just above Danes Road in the summer of 2006 (WDNR unpublished data), nor were any taken in 9 total samples from 6 locations during 1977-1980 (WDNR unpublished data; see <http://web2.er.usgs.gov/wdnrfish/>), but sampling was limited and not specifically targeted at spawning greater redhorse. Spawning of greater redhorse has not been studied in the Manitowoc River basin, but can be inferred from observations elsewhere in Wisconsin. In the vicinity of Pine Creek, greater redhorse probably spawn in May, with a peak mid to late month.

The population of greater redhorse in the South Branch of the Manitowoc River above the Hayton Millpond is probably small. In 2006, two individuals were collected in 290 m of river sampled, for a catch rate of 11 greater redhorse per mile (WDNR unpublished data). No greater redhorse were collected by the WDNR from this river reach in three total samples from three locations during 1980-1982. The best populations of greater redhorse in

Wisconsin (St. Croix River and Milwaukee River) yield catch rates of more than 50 fish per mile (WDNR unpublished data; see <http://web2.er.usgs.gov/wdnrfish/>). In a relatively narrow and shallow river such as the South Branch of the Manitowoc, collection efficiency (i.e., number caught/number actually present) for greater redhorse is probably high, 50% or more (Simonson and Lyons 1995). Assuming 50% efficiency, the estimated population is 22 fish per mile, or 55 fish for the entire 2.5 mile reach. We assume that most of these fish would remain in the South Branch of the Manitowoc River, and that less than half might enter Pine Creek for spawning. Thus, the maximum number of greater redhorse in Pine Creek during spawning would likely be no more than 25 fish.

The current phase of the proposed project, referred to as the Hayton Area Remediation Project, will consist of the removal of PCB-impacted overbank soil and in-channel sediment along 4.1 miles of Pine Creek northeast of New Holstein, between Danes Road and Quarry Road. Previous soil and sediment investigations have identified areas of Pine Creek with total PCB concentrations requiring removal according to US Environmental Protection Agency regulations. Excavation will be accomplished using a track-mounted backhoe or similar heavy equipment. In-channel sediment will be dry-excavated through the use of temporary base flow diversions in Pine Creek. Approximately 27,200 cubic yards of soil will be removed from overbank locations, covering an area of approximately 23.3 acres. Approximately 9,200 cubic yards of sediment will be removed from in-channel locations, covering an additional area of approximately 8.6 acres. Clearing and grubbing outside of the excavation areas for construction equipment traffic is estimated to cover an additional 12.6 acres. This is the second phase of this multi-phase project, which includes Hayton Millpond, Pine Creek, Jordan Creek and agricultural drainage ditches. The current phase also includes refurbishment of one deteriorated creek crossing. Please refer to the Environmental Impact Statement for project details.

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TRC Environmental Corporation's proposed removal of PCB-contaminated sediments from instream and overbank areas in Pine Creek may result in the incidental taking of some state threatened greater redhorse. Although potential spawning habitat exists in Pine Creek within the project boundary, the habitat in the approximately 4 mile long stretch of the proposed work area is not critical to greater redhorse within this basin or on a statewide basis. We estimate that total take of adult greater redhorse would be no more than 25 individuals, along with an indeterminate number of young-of-the-year.

However, the Department has determined that the measures above will be taken to minimize impacts to this species; that the taking is not likely to jeopardize the continued existence or recovery of the state population of the greater redhorse or the whole plant-animal community of which they are a part; and the action will benefit the public safety that justifies the action.

Conservation Measures

A series of conservation measures and conditions identified in TRC Environmental Corporation's conservation plan will allow the project to avoid or minimize to the extent practicable the incidental taking of greater redhorse related to the proposed project. If this Incidental Take Authorization is provided by the Department, the conditions contained within the Conservation Plan must be implemented to reduce the likelihood of mortality to this fish species.

References

- Becker, G. C. 1983. Fishes of Wisconsin. University of Wisconsin Press, Madison. 1083 pp.
- Lyons, J., P.A. Cochran and D. Fago. 2000. Wisconsin Fishes 2000: Status and Distribution. University of Wisconsin Sea Grant Institute, 87pp.
- Simonson, T. D., and J. Lyons. 1995. Comparison of catch per effort and removal procedures for sampling stream fish assemblages. North American Journal of Fisheries Management 15:419-427.